

1                   **Remarks for the "Response to Non-Final Office Action**  
2                   **dated June, 5, 2006"**

3           Applicant respectfully requests reconsideration and allowance of all of the  
4   claims of the application. Claims 1-28, 34-42, and 45-46 are presently pending.  
5   Claims amended herein are 1, 13, 34, 40, and 45. Claims withdrawn or cancelled  
6   herein are 29-33. New claims added herein are none.

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8           **Formal Request for an Interview**

9           If the Office's response to this communication is anything other than  
10   allowance of all pending claims, then Applicant formally requests an interview  
11   with the Examiner of the present patent application. Applicant asks the Examiner  
12   to call and/or email the undersigned attorney for the Applicant to schedule a  
13   convenient date and time for a telephone interview. The undersigned attorney is  
14   on the west coast; therefore he is typically available about 12pm until 7pm  
15   (Eastern Time) from Monday through Friday.

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17           **Claim Interpretation**

18           On pp. 2-3 of the Action, the Office explained that because it gives the  
19   "broadest reasonable interpretation" in light of the supporting disclosure, that the  
20   Office interprets the "kernel emulator" as either software or hardware or both.

21           To clarify, Applicant has amended all of the pending independent claims  
22   (except for claim 29) to clarify that the term "kernel emulator" is restricted to  
23   software implementations. See the claims for the specific clarifying language  
24   used.

## Substantive Claim Rejections

### Claim Rejections under §§ 102 and 103

The Office rejects all of the pending claims (1-28, 34-42, and 45-46) under §102 and/or §103. For the reasons set forth below, the Office has not shown that one or more of the cited references anticipate the rejected claims. For the reasons set forth below, the Office has not made a *prima facie* case showing that the rejected claims are obvious (under §103). Accordingly, Applicant respectfully requests that the rejections be withdrawn and the case be passed along to issuance.

The Office's rejections are based upon the following references:

- **Scalzi:** *Scalzi et al.*, US Patent No. 5,560,013 (issued 9/24/1996);
- **Franz:** Michael Franz, "Emulating an Operating System on Top of Another" Software – Practice and Experience. Vol. 23, No. 6, June 1993, pp. 677-692);
- **Duvall:** *Duvall et al.*, US Patent No. 4,742,447 (issued 5/3/1988);
- **McCoy:** *McCoy et al.*, US Patent No. 5,036,484 (issued 7/30/1991).

### Overview of the Application

The Application describes a technology facilitating the operation of non-native program modules within a native computing platform. More particularly, it describes a technology facilitating the interoperability of native and non-native program modules within a native computing platform.

Specifically, this technology involves an emulation of the kernel of the non-native operating system. Instead of interacting with the native kernel of the native computing platform, the non-native program modules interact with a non-native

1 kernel emulator. This emulator handles the necessary conversions and translations.  
2 With this non-native kernel emulation, native and non-native program modules are  
3 interoperable. Except for the kernel emulator, none of the program module (native  
4 or non-native) and none of the other portions of the native computing platform are  
5 aware of the emulation. The computing environment and other program modules  
6 appear to be non-native to the non-native program modules. Likewise, the non-  
7 native program modules appear to be native to the computing environment and the  
8 native program modules.

### 9 10 Cited References

11 The Office cites **Scalzi** as its reference for is anticipation-based rejections  
12 and the primary references in many of its obviousness-based rejections. The  
13 Office cites **Duvall** as its primary reference for some of its obviousness rejections  
14 and a secondary reference in other obviousness-based rejections. In addition, the  
15 Office cites **Franz** and **McCoy** as secondary references in some of its  
16 obviousness-based rejections.

### 17 18 Scalzi

19 **Scalzi** describes a method of utilizing large virtual addressing in a target  
20 computer to implement an instruction set translator (IST) for dynamically  
21 translating the machine language instructions of an alien source computer into a  
22 set of functionally equivalent target computer machine language instructions,  
23 providing in the target machine, an execution environment for source machine  
24 operating systems, application subsystems, and applications.  
25

1 The target system provides a unique pointer table in target virtual address  
2 space that connects each source program instruction in the multiple source virtual  
3 address spaces to a target instruction translation which emulates the function of  
4 that source instruction in the target system. The target system stores the translated  
5 executable source programs by actually storing only one copy of any source  
6 program, regardless of the number of source address spaces in which the source  
7 program exists.

8 The target system manages dynamic changes in the source machine storage,  
9 accommodating the nature of a preemptive, multitasking source operating system.  
10 The target system preserves the security and data integrity for the source programs  
11 on a par with their security and data integrity obtainable when executing in source  
12 processors (i.e., having the source architecture as their native architecture). The  
13 target computer execution maintains source-architected logical separations  
14 between programs and data executing in different source address spaces--without a  
15 need for the target system to be aware of the source virtual address spaces.

16  
17 Duvall

18 **Duvall** describes a method for accessing information in a page segmented  
19 virtual memory data processing system in which virtual machines running UNIX  
20 type operating systems are concurrently established, and in which a memory  
21 manager controls the transfer of information between primary and secondary  
22 storage devices in response to the occurrence of page faults. The method  
23 establishes a plurality of data structures in a dynamic manner in response to a  
24 Supervisor call to "map" a file.  
25

1 The mapping process assigns a new segment of virtual memory to the  
2 mapped file and correlates, in one data structure, the virtual address of each page  
3 of data in the new segment to a disk file address where that page is actually stored.  
4 A UNIX system call by an application program for a specific virtual page is  
5 handled by the page fault hanger, and not the UNIX kernel, since the application  
6 can supply the real address of the page on the disk file from the data structure that  
7 was created by the mapped page range Supervisor call. Simple load and store type  
8 of instructions are employed for the data transfer, which avoids much of the  
9 overhead that normally accompanies conventional UNIX read and write system  
10 calls to the storage subsystem.

11  
12 Franz

13 As its name implies, **Franz** discusses the emulation of one operating  
14 system on top of another operating system. **Franz** describes the design of an  
15 operating-system emulator. This software interface provides the services of one  
16 operating system (e.g., Oberon) on a machine running a different operating system  
17 (e.g., Macintosh), by mapping the functions of the first onto equivalent calls to the  
18 second.

19  
20 McCoy

21 **McCoy** describes a system for emulating the operation of a terminal  
22 connected to a host computing system while retaining the ability to utilize personal  
23 computer application programs resident in the personal computer by utilizing a  
24 personal computer/host terminal emulation program which conducts an analysis of  
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1 host data and keystrokes to identify personal computer commands and calls the  
2 appropriate resident application program in response to such commands.  
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## Anticipation Rejections

### Anticipation Rejections Based upon Scalzi

The Office rejects claims 1, 3-6, 9-13, 15-17, 19-28, 34, 37-40, 42, and 45-46 under USC § 102(b) as being anticipated by **Scalzi**. Applicant respectfully traverses the rejections of these claims. Based on the reasons given below, Applicant asks the Office to withdraw its rejections of these claims.

#### Claims 1, 3, 4, 13, 15, 16, 34, 40, and 45

In the Action (pp.15-16), the Office equates **Scalzi's** disclosures to the target subject matter of these claims: "kernel of the operating system." Applicant submits that the kernel-as-software amendment herein helps clarify the claim and distinguishes the claims from **Scalzi**.

In addition, the Office indicates the **Scalzi** does disclose kernel calls and kernel emulation. Applicant submits, however, that **Scalzi** defines binary translation, which it is a technique for automatically converting the machine instructions—instruction by instruction—of one computing platform to those of another. Such a translation involves "machine instructions" and not kernel calls.

To use a metaphor of an automobile, machine-instruction translation (of **Scalzi**) is akin to replacing the "nuts & bolts" of a car for different sized "nuts & bolts." However, the kernel call and kernel emulation (of one or more claims of the present application) is akin to replacing the V-6 internal combustion gasoline-fueled engine with a V-8 diesel-fueled engine in the pick-up truck. With both instances, the "nuts & bolts" are replaced, but, with the latter, the entire engine is

1 replaced. This metaphor was selected because the kernel is effectively the  
2 “engine” of the operating system.

3 These rejected claims recite kernel emulation<sup>1</sup> and operating on or in  
4 response to kernel calls. To use the metaphor, they focus on the “engine” as a  
5 whole and not just its “nuts & bolts.” As defined in the claims, a kernel is  
6 software alone. Applicant submits that while **Scalzi** does appear to disclose  
7 instructions conversion, it fails to disclose kernel emulation, kernel calls, and  
8 interception of such kernel calls.

9 On p.16 of the Action, the Office indicates that machine instruction  
10 translation is inherent in “the nature of events between the native and non-native  
11 functions.” Just like it seems reasonable that the “nuts & bolts” of an engine  
12 would be replaced when the engine itself is replace, it seems reasonable to assume  
13 at least some machine-instruction translation may occur when emulating the  
14 “engine” (aka, “kernel”) of the operating system. Applicant respectfully submits  
15 that merely disclosing machine-instruction translation (as **Scalzi** does) does not  
16 amount to kernel emulation or interception of kernel calls (as recited in the claims  
17 of the present application).

18 As shown above and in previously submitted responses, **Scalzi** does not  
19 disclose all of the claimed elements and features of these claims. Accordingly,  
20 Applicant asks the Office to withdraw its rejection of these claims.

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25 <sup>1</sup> E.g., “kernel emulator” in claims 1, 40 and 45, “emulating a kernel” in claim 13, and “emulating  
a non-native kernel” in claim 34



Claims 2-12

These claims ultimately depend upon independent claim 1. As discussed above, claim 1 is allowable.

In addition to its own merits, each of these dependent claims is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each of these dependent claims because its base claim is allowable.

Moreover, Applicant submits that **Scalzi** discloses conversion of a "machine" instruction and that is not equivalent to translation of kernel calls.

Claims 14-28

These claims ultimately depend upon independent claim 13. As discussed above, claim 13 is allowable.

In addition to its own merits, each of these dependent claims is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each of these dependent claims because its base claim is allowable.

Claims 35-39

These claims ultimately depend upon independent claim 34. As discussed above, claim 34 is allowable.

In addition to its own merits, each of these dependent claims is allowable for the same reasons that its base claim is allowable. Applicant submits that the

1 Office withdraw the rejection of each of these dependent claims because its base  
2 claim is allowable.

3  
4 Claims 41 and 42

5 These claims ultimately depend upon independent claim 40. As discussed  
6 above, claim 40 is allowable.

7 In addition to its own merits, each of these dependent claims is allowable  
8 for the same reasons that its base claim is allowable. Applicant submits that the  
9 Office withdraw the rejection of each of these dependent claims because its base  
10 claim is allowable.

11  
12 Claim 46

13 This claim ultimately depends upon independent claim 45. As discussed  
14 above, claim 45 is allowable.

15 In addition to its own merits, this dependent claim is allowable for the same  
16 reasons that its base claim is allowable. Applicant submits that the Office  
17 withdraw the rejection of this dependent claim because its base claim is allowable.  
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## Obviousness Rejections

### Lack of *Prima Facie* Case of Obviousness (MPEP §§ 706.02 & 2142)

Applicant disagrees with the Office's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a *prima facie* case have not been met.

According to the MPEP §§ 706.02 and 2142, three basic criteria must be met in order to establish a *prima facie* case of obviousness:

- There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.
- There must be a reasonable expectation of success.
- The prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

### Based upon Scalzi (alone)

The Office rejects claims 1-42, 45, and 46 under USC § 103(a) as being unpatentable over **Scalzi** (alone). Applicant respectfully traverses the rejection of this claim. Applicant asks the Office to withdraw its rejection of this claim.

Claims 1, 3, 4, 13, 15, 16, 34, 40, and 45

Applicant may be mistaken, but it appears that the Office has supplies the exact same reasoning—save one bit—as it does for its anticipation rejection of the same claims. If so, then Applicant reiterates its response (given above and in previous responses) to the Office’s anticipation rejections here.

On p. 7 of the Action, the Office added this one bit regarding its obviousness rejection of these claims that was not included in its anticipation rejection of the same claims:

8. Claims 1-42, 45 and 46 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Scalzi et al. (US Patent 5,560,013), (hereafter Scalzi). Scalzi teaches an emulator control program that manages target processors.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the management of dynamic changes within the source machine storage in multitasking source operation of Scalzi because Scalzi teaches a method to improve system performance of linkage to, and data access by, that code (Scalzi: column 4, lines 5-6).

Applicant does not understand the Office’s reasoning here. Applicant asks the Office to be more explicit here in satisfying its burden to establish its *prima facie* case:

- Where does **Scalzi** provide some suggestion or motivation to modify itself to produce that which is recited in the claims?
- Why is there a reasonable expectation of success for that suggested modification?

- 1           • Does Scalzi teach or suggest all the claim limitations? If not, what is  
2           missing? How does the Office supply that missing element/feature?

3           As shown above and in previously submitted responses, **Scalzi** does not  
4           disclose all of the claimed elements and features of these claims. Furthermore,  
5           Applicant submits that the Office has not established its *prima facie* case for  
6           obviousness. Accordingly, Applicant asks the Office to withdraw its rejection of  
7           these claims.

8  
9           Claims 2-12

10           These claims ultimately depend upon independent claim 1. As discussed  
11           above, claim 1 is allowable.

12           In addition to its own merits, each of these dependent claims is allowable  
13           for the same reasons that its base claim is allowable. Applicant submits that the  
14           Office withdraw the rejection of each of these dependent claims because its base  
15           claim is allowable.

16           Moreover, Applicant submits that **Scalzi** discloses conversion of a  
17           “machine” instruction and that is not equivalent to translation of kernel calls.

18  
19           Claims 14-28

20           These claims ultimately depend upon independent claim 13. As discussed  
21           above, claim 13 is allowable.

22           In addition to its own merits, each of these dependent claims is allowable  
23           for the same reasons that its base claim is allowable. Applicant submits that the  
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1 Office withdraw the rejection of each of these dependent claims because its base  
2 claim is allowable.

3  
4 Claims 35-39

5 These claims ultimately depend upon independent claim 34. As discussed  
6 above, claim 34 is allowable.

7 In addition to its own merits, each of these dependent claims is allowable  
8 for the same reasons that its base claim is allowable. Applicant submits that the  
9 Office withdraw the rejection of each of these dependent claims because its base  
10 claim is allowable.

11  
12 Claims 41 and 42

13 These claims ultimately depend upon independent claim 40. As discussed  
14 above, claim 40 is allowable.

15 In addition to its own merits, each of these dependent claims is allowable  
16 for the same reasons that its base claim is allowable. Applicant submits that the  
17 Office withdraw the rejection of each of these dependent claims because its base  
18 claim is allowable.

19  
20 Claim 46

21 This claim ultimately depends upon independent claim 45. As discussed  
22 above, claim 45 is allowable.  
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1 In addition to its own merits, this dependent claim is allowable for the same  
2 reasons that its base claim is allowable. Applicant submits that the Office  
3 withdraw the rejection of this dependent claim because its base claim is allowable.  
4

5 **Based upon Scalzi and Franz**

6 The Office rejects claims 2 and 14 under USC § 103(a) as being  
7 unpatentable over **Scalzi** in view of **Franz**. Applicant respectfully traverses the  
8 rejection of this claim. Applicant asks the Office to withdraw its rejection of this  
9 claim.  
10

11 **Claims 2 and 14**

12 Claim 2 ultimately depends upon independent claim 1. As discussed  
13 above, claim 1 is allowable. Claim 14 ultimately depends upon independent claim  
14 13. As discussed above, claim 13 is allowable.

15 In addition to its own merits, each of these dependent claims is allowable  
16 for the same reasons that its base claim is allowable. Applicant submits that the  
17 Office withdraw the rejection of each of these dependent claims because its base  
18 claim is allowable.  
19

20 **Based upon Scalzi and Duvall**

21 The Office rejects claims 7, 8, 18, 35, and 41 under USC § 103(a) as being  
22 unpatentable over **Scalzi** in view of **Duvall**. Applicant respectfully traverses the  
23 rejection of this claim. Applicant asks the Office to withdraw its rejection of this  
24 claim.  
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2 Claims 7, 8, 18, 35, and 41

3 Claims 7 and 8 ultimately depend upon independent claim 1. As discussed  
4 above, claim 1 is allowable. Claim 18 ultimately depends upon independent claim  
5 13. As discussed above, claim 13 is allowable. Claim 35 ultimately depends upon  
6 independent claim 34. As discussed above, claim 34 is allowable. Claim 41  
7 ultimately depends upon independent claim 40. As discussed above, claim 40 is  
8 allowable.

9 In addition to its own merits, each of these dependent claims is allowable  
10 for the same reasons that its base claim is allowable. Applicant submits that the  
11 Office withdraw the rejection of each of these dependent claims because its base  
12 claim is allowable.  
13

14 Based upon Duvall and McCoy

15 The Office rejects claims 29-33 under USC § 103(a) as being unpatentable  
16 over **Duvall** in view of **McCoy**. Applicant respectfully traverses the rejection of  
17 this claim.

18 However, to speed along the other pending claims to issuance, Applicant  
19 withdraws—without prejudice—claims 29-33 from consideration herein.  
20 Applicant reserves the right to reintroduce these claims at a later time in a  
21 offspring case.  
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1 **Dependent Claims**

2 In addition to its own merits, each dependent claim is allowable for the  
3 same reasons that its base claim is allowable. Applicant submits that the Office  
4 withdraw the rejection of each dependent claim where its base claim is allowable.  
5

6 **Conclusion**

7 All pending claims are in condition for allowance. Applicant respectfully  
8 requests reconsideration and prompt issuance of the application. If any issues  
9 remain that prevent issuance of this application, the Office is urged to contact the  
10 undersigned attorney before issuing a subsequent Action.  
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14 Dated: 9.5.06

Respectfully Submitted,

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